



Nucleic acid fragments for the identification of bacteria in industrial wastewater bioreactors

Description of Technology: This invention relates to the field of molecular biology and microbiology. More specifically, 16S rRNA regions have been identified and isolated from several previously unrecognized bacteria from an industrial wastewater bioreactor. Probes and primers corresponding to the unique regions have been constructed to enable the rapid identification of these bacteria in wastewater bioreactors. The metabolic characteristics of the newly defined species have been proposed.

Patent Listing:

1. **US Patent No. 7,094,893**, Issued August 22, 2006, "Nucleic acid fragments for the identification of bacteria in industrial wastewater bioreactors"

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Market Potential: Wastewater biotreatment is a cost effective, environmentally benign technology that is widely used by municipalities and industry to treat municipal waste or process waste. A variety of different processes that use microbes to remove inorganic and organic chemicals from industrial wastewater are known to those skilled in the art. For example, the activated sludge process is one common method. An activated sludge system usually involves a continuous flow process in which wastewater is mixed with sludge and aerated (Bitton, G. 1994. Wastewater Microbiology. Wiley-Liss, New York). The key feature of an activated sludge system is that some sludge is recycled from a settling tank back into the main reactor. The sludge is composed of bacteria and other microorganisms that utilize organic and inorganic chemicals in the wastewater as sources of nutrients and energy for growth. By utilizing the chemicals in the wastewater for metabolism and growth, the microorganisms incorporate the chemicals into new microorganisms and/or convert the chemicals into gases such as carbon dioxide and nitrogen, thereby removing the chemicals from the wastewater. Activation of sludge through recycling maintains a large population of microbes in the main reactor vessel to degrade the waste chemicals.

Benefits:

- Cost effective, environmentally benign technology used by municipalities and industry to treat municipal waste

Applications:

- Molecular biology
- Microbiology

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